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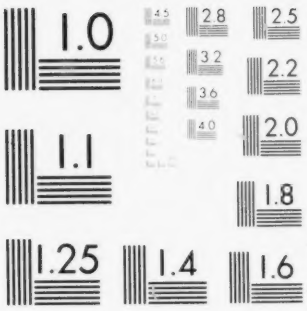

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ABSTRACT

This report assesses the status of and resources for doctoral education in New York State. The status of doctoral education in New York is examined according to growth and resources, costs and financing, the quality of doctoral education, and future demands and resources. Regents policies, regents objectives, and recommendations for implementation are reviewed. Recommendations for implementation concern assessment of doctoral programs, financial support for doctoral programs, equality of access to all programs for qualified students, response of doctoral education to changing conditions, and coordination and cooperation in doctoral education. Appendices suggest criteria for evaluation of doctoral programs, and recommendations of the Regents Commission on Doctoral Education. (MJM)

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A Position Paper...
...No. 19 of a Series

MEETING THE NEEDS OF DOCTORAL EDUCATION

A Statement of Policy and Proposed Action by the
REGENTS OF THE UNIVERSITY OF THE STATE OF NEW YORK

THE STATE EDUCATION DEPARTMENT
ALBANY
AUGUST 1973

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President of the University and Commissioner of Education
EWALD B. NYQUIST

FOREWORD

New York is committed to sustain a comprehensive high quality system of doctoral education to meet society's needs for new knowledge, skilled manpower, and public service. The provision of equal opportunity for doctoral study to all qualified students in New York is part of the State's commitment.

New York institutions have been leaders in doctoral education since its beginning in the State over one hundred years ago. In the past 25 years especially, doctoral offerings in both the public and private institutions in New York have expanded in scale and variety. In the most recent years, however, doctoral education and doctoral institutions have experienced a number of interrelated difficulties requiring a major reassessment of statewide policy.

The Regents Commission on Doctoral Education, under the skilled leadership of Robben W. Fleming, President of the University of Michigan, undertook in January 1972 a comprehensive study and assessment of the status of and resources for doctoral education in the State.* Their report, *Meeting the Needs of Doctoral Education in New York* was submitted to the Regents in January 1973. The Regents sincerely thank the Commission for their dedication and work in this study and for the valuable recommendations they made. The report was subsequently shared with the State's academic community where it was widely discussed and commented upon. These responses and the report itself were invaluable resources in the preparation of this position paper.

The Regents believe that the policies proposed in this paper will enable the State to marshal and assign its resources most effectively for New York's institutions to meet the challenging needs of the future. We urge that these policies be adopted and adequately funded.

Ewald B. Nyquist

EWALD B. NYQUIST
Commissioner of Education

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MEETING THE NEEDS OF DOCTORAL EDUCATION

In recent years the problems confronting doctoral education have been mounting rapidly. They are derived from varied sources including: the financial difficulties facing higher education generally; precipitous reductions in established approaches to Federal aid for doctoral education and research programs; changing employment markets for holders of doctorates; the oversupply of doctorates in certain fields; and the raising of questions as to the most appropriate directions for doctoral education in a rapidly changing society.

The need for coordination of planning for doctoral education at the State level has never been more apparent. This is particularly the case in New York State, with its unique combination of two public sectors and a private one comprising the higher education community. The Regents of the State of New York have the mandated responsibility to deal with the problem of educational coordination and planning. It was in recognition of this responsibility that the Regents established the Commission on Doctoral Education with the charge to make recommendations for policy to guide the development of doctoral education in the State. The recommendations of the Commission, and the responses of the State's academic community to the Commission's report, underlie the policies in this position paper.

I

THE STATUS OF DOCTORAL EDUCATION IN NEW YORK

Growth and Resources

Doctoral education expanded dramatically in the 1960's, throughout the nation as well as in New York.[1] Nationally there was a tripling of doctorate output during this decade, while New York's output doubled. Thus, while the State accounted for 15% of the nation's doctoral output in 1960, by 1970 this figure had fallen to 11%.

Two-thirds of the increase in doctoral production in New York State was accounted for by the private sector and the remainder by the public sector. Five more private and five more public institutions awarded doctorates at the conclusion of the 1960's than at its inception. Many of these data are summarized in Table 1.

New York enjoys a comprehensive system of doctoral education. Presently, the State has a thoroughly mixed economy of 28 private and 14 public doctorate-granting institutions. Most doctorate production, however, is concentrated in seven private and six public institutions which account for over 80% of the State's doctoral enrollments. Twenty-nine additional institutions, for the most part with specialized missions and programs, complement these major producers of doctorates.

Overall comprehensiveness and sufficiency of traditional program coverage is indicated by a variety of data. Each of the State's major regions and population centers contains a comprehensive array of doctoral programs. Examination of resources at the program level also shows comprehensiveness and sufficiency. In most major fields of study at least 10 institutions in New York offer doctoral programs. Public institutions are strongly represented in terms of number of programs and enrollments in the major fields, accounting for one-third of the programs and one-third of the enrollments. These data are shown in Table 2. Because of the kind of sufficiency described, there is a net migration of graduate students into New York from other states and a relatively high retention rate in New York of residents who undertake doctoral study elsewhere.

[1] This paper deals with doctoral degrees such as the Ph.D. and Ed.D. It does not include professional doctoral degrees such as M.D., D.D.S., and D.V.M.

TABLE 1

Doctoral Degree Output in New York and United States 1960, 1970 and 1980 (proj.)

Type of Institution	NUMBER		
	1960	1970	1980 (proj.)
Total Public	120 (8%)	691 (21%)	1,661 (35%)
SUNY (including five contract col.)	120 (8%)	597 (18%)	1,384 (29%)
CUNY		94 (3%)	277 (6%)
Total Private	1,477 (92%)	2,618 (79%)	3,037 (65%)
Multiversities[1]	908 (57%)	1,885 (57%)	2,047 (44%)
All Other	569 (35%)	733 (22%)	990 (21%)
New York State	1,597	3,312	4,698 (4,300)[2]
United States	10,650	30,100	40,000–45,000

Numbers in parentheses are percentages of New York State output for each year.

Source: 1972 Institutional Master Plans; Higher Education General Information Survey, *Degrees Awarded, 1970–71*; NYS Education Department, *College and University Degrees, 1960–61*. National Research Council.

[1] Columbia, Cornell, New York University, Rochester, and Syracuse.

[2] Analysis in the report of the Regents Commission on Doctoral Education, *Meeting the Needs of Doctoral Education in New York* concludes that 4,300 doctorates for 1980 is a more valid projection. This source also cites the projected national doctorate production.

TABLE 2

Number of Institutions With Doctoral Programs and Distribution of Enrollments in Selected Fields in New York, by Institutional Control, 1971–72

Field	Insts. with Programs		Percent of Enrollment	
	Public	Private	Public	Private
Biological Sciences	11	14	50%	50%
Business and Management	3	6	43	57
Computer Sciences	2	5	34	66
Education	4	9	17	83
Engineering	5	10	27	73
Fine Arts	3	5	23	77
Foreign Languages	5	6	42	58
Letters	5	11	45	55
Mathematics	6	11	35	65
Physical Sciences	6	15	33	67
Psychology	6	14	35	65
Social Sciences	7	9	34	66
All Fields Combined			34	66

Source: *Higher Education General Information Survey, Advanced Degree Enrollments, Fall 1971.* Number of institutions with doctoral programs based on reported doctoral enrollment.

Costs and Financing

Central concerns in the debate about doctoral education have been its relatively high cost and the continuing financial stress experienced in higher education including, of course, the doctoral institutions. These stresses have been seriously exacerbated by the recent abrupt and severe diminution in long established Federal aid for graduate education and doctoral education in particular.

The financial problem has been and remains very serious, and in gauging its dimensions, attention has been brought to the significant contribution of doctoral education costs to the total costs of higher education. Accurate data on the particular costs of doctoral education and their contribution to overall financial stress are difficult to ascertain except as an approximation, so intimately associated are they with costs at other levels. Nevertheless, some general estimates can be made with reasonable confidence.

We estimate that annual doctoral education costs, averaging a calculated $8,600 per full-time equivalent student in 1972, are 5.4 times those for an undergraduate student. The average cost of a doctoral degree was $52,000 in 1972. For 1970–71, in a sample comprised of the 10 major doctorate granting institutions in New York, it was estimated that while doctoral enrollment was 11% of the total, the cost of doctoral education was above 30% of total costs.

New York State supports doctoral education in both the public and private sectors. For the private institutions, the Bundy Aid program now contributes $3,900 per degree. This amounts on the average to about $500 a year, approximately 6% of the estimated average annual cost for each doctoral student. In the public institutions where, of course, major contributions are made by the State, those for doctoral education are generally estimated to be at figures well below actual costs. In both sectors important differences must be made up from other sources.

It is seen that doctoral education is very expensive in absolute terms and contributes in a major way to the overall financial stresses that institutions are experiencing. At the same time there is evidence that funding for doctoral education falls short of its real costs. This underfunding takes place at a time when it is generally conceded in the higher education community that, for the ensuing decade or longer, resources are unlikely to grow any faster than inflationary trends and may well decrease on a unit-student basis. The need for careful and selective application of available resources for doctoral education is clear.

Finally, a note is added about the vital role in doctoral education for the Federal government. Doctorates are highly mobile, generally serving a national market. Doctoral education represents a national resource with reference to the instruction, research, and community services it provides. While education in general, including doctoral education, is a state responsibility, it is clear that there must be a shared responsibility between state and Federal governments for doctoral education. State responsibilities should center about the establishment of institutions and their programs and the basic maintenance of both of these at levels of high quality. Federal responsibilities should be complementary to those of the state and should center about provision of major support for research, fellowships, and traineeships, and basic educational entitlement grants. A Federal-state partnership based on purposeful and shared planning is believed to be the best approach to maintaining an efficient and productive doctoral education enterprise that will serve the needs of all concerned.

The Quality of Doctoral Education

The rapid expansion of doctoral programs and enrollments has been accompanied by concern about its effect on quality. This concern is heightened in light of the costs of doctoral education and the potential erosion of quality as financial support falls.

Two measures of quality are widely accepted as indicative although they are not without their critics. One is reputational, notably exemplified by the American Council on Education studies of graduate faculty quality.[2] The other is the attendance at institutions of important fellowship winners.

According to these two measures, the quality of doctoral education in New York is, overall, above the national norm. For example, the Roose-Anderson Report showed that the graduate faculties of

[2] Cartter, Allan M. An *Assessment of Quality in Graduate Education.* Washington, D.C.: American Council on Education, 1966. Roose, Kenneth D. and Anderson, Charles J. *A Rating of Graduate Programs.* Washington, D.C. American Council on Education, 1970.

It is important to note that not all New York's doctoral granting institutions are included in these studies, but only those that had granted at least 100 doctorates at the time of the survey. Thus, among institutions omitted are City University, State University (except for the Buffalo Center), and Clarkson. Also, not all fields were surveyed, omitting such ones as Education and Business Management. The 33 subfields surveyed enrolled in 1970–71 about 50% of the State's doctoral students. Only 67% of those were in programs at institutions included in the study. Thus, about 37% of the doctoral students were enrolled in programs surveyed. The remainder were in nonsurveyed fields or in programs at institutions still too recently involved in doctoral education to have been included.

39% of the rated programs in New York were considered strong or distinguished compared to 31% nationally. Only 18% of New York's rated programs had faculties adjudged marginal or inadequate for doctoral programs compared to a national figure of 30%. However, when compared with a number of the other major doctorate-producing states, New York's rating was not impressive. For example, New York's 39% in the highest category must be compared with Massachusetts' 47%, Illinois' 54%, Michigan's 55%, California's 66%, Minnesota's 71%, and Wisconsin's 77%.

Similarly, although well above the national average, New York is only sixth among the 10 leading science doctorate-producing states for 1970, based upon the ratio of National Science Foundation Fellows attending New York institutions to total science doctorates awarded. In the humanities and social sciences, however, the State ranks higher. Using the same measure for winners of Woodrow Wilson Fellowships, New York ranks third among the leading doctorate-producing states in those fields. All doctorate-granting institutions in the State were included in these rankings according to fellowship winners.

New York's institutions run the gamut of quality by the traditional measures cited above. Notable is the existence of several institutions whose doctoral programs are generally strong balanced by a few whose programs are generally weak. With few exceptions, in the major areas of knowledge, high (or low) quality programs are generally clustered in individual institutions.

The National Science Board, in an analysis of the American Council on Education's study of graduate faculty quality, found a number of interesting generalizations.[3] They noted that high quality programs are generally associated with larger enrollments than are low quality programs. High quality programs are also associated with major institutional allocations of resources and general institutional commitment to doctoral education. High quality programs are found more efficient than low quality programs in that they have higher retention rates and lower staffing requirements. The efficiency of high quality programs may be explained in part by the fact that they attract the best students and those who are capable of greater independence of study. High quality is also associated in New York State with comparatively high faculty salaries, a relatively high proportion of full professors to total staff, and a relatively low percent of income from tuition and a high percent from sponsored research

[3] National Science Board. *Graduate Education: Parameters for Public Policy*. U.S. Government Printing Office, 1969.

and gifts and endowments. Thus, according to these analyses, quality is generally concentrated and expensive. There is concern that the proliferation of doctoral programs would result in an overall dilution of quality. It was estimated by the National Science Board that by 1980 nearly one-third of the national doctorate production will be by institutions that are "subminimal or otherwise less than optimum quality." This projection was confirmed more recently by Kidd.[4]

In New York, comparison of the Cartter (1966) and Roose-Anderson (1970) reports revealed that over the interval covered, the established programs as a group improved their rating. The new programs, on the other hand, were rated lower as a group than the older ones. The net effect was a decrease in the proportion of doctorates produced by the highest rated programs and an increase in the proportion of those produced by the intermediate rated ones. The proportion produced by the lowest rated programs remained the same. Thus, among programs included in the surveys, a small but definite dilution of quality occurred. If there is added to this the production from the newer and thus unrated programs, which traditionally require considerable time before it is known whether they will establish high quality, a somewhat greater dilution of quality probably occurred.

Consideration of this trend, in combination with the financial problems already discussed, emphasizes the necessity for selectively concentrating resources in support of quality programs.

Future Demands and Resources

Estimates of future student demand and societal need are invariably tentative and subject to revision. But within these estimates, it appears that New York's present resources for doctoral education, for the most part, are sufficient to meet student demand and to produce the *numbers* of doctorates needed during the coming decade. There remain two important questions, however. One is equality of access for all students who meet the academic standards for admission. The other is the extent to which doctoral education should be adjusted so that programs respond to changing societal needs without abandoning the necessary commitment to traditional scholarship and research.

The question of equality of access is first economic. New York directly supports doctoral students up to a maximum of $600 per year for the lowest income groups through its Scholar Incentive Program.

[4] National Science Board, *op.cit.* and Kidd, Charles V. *Federal Support for Graduate Education in the Seventies* (unpublished paper) October, 1972.

Loan programs are also available. These sources of support are still not adequate, however, to equalize educational opportunity at all the State's institutions for economically disadvantaged groups. This situation especially applies to qualified students seeking to attend private institutions, many of which now have annual tuitions of over $3,000. The problem has been exacerbated by the severe reduction of Federal fellowships and traineeships.

In addition to the economic barrier, but not readily separable from it, are the long standing attitudinal barriers affecting the admission of women and minority group students to doctoral programs. Studies of the number of women and minority students in doctoral programs reveal that recruitment and student support practices designed to overcome the effects of discrimination have not been adequate. While progress has been made there is still much to be done and it is clear that all parties concerned must continue and intensify their efforts to change the current situation.

It is probable that doctoral enrollments and degree output will grow at a substantially lower rate in the 1970's than in the 1960's. Enrollments in the most recent years have leveled off, indicating a leveling off of degree awards beginning in the mid-70's. Degrees awarded in New York in the 1970's are expected to increase at about one-half the rate of the 1960's, with the public sector accounting for about 70% of the increase. Of course, there are sharply different patterns of student demand among institutions and fields, and these patterns continuously change and require significant reallocations of resources.

A recent survey of the capacity of New York's doctoral institutions for doctoral enrollments indicates that overall and insofar as numbers are concerned, New York's doctoral programs now have resources adequate to meet present and expected student enrollments. As a group, the doctoral institutions are operating at about 75% of present capacity. About 5,500 additional doctoral students may be accommodated in present programs. A reasonable estimate of the increase in the State's annual doctoral enrollment between 1971 and 1980 is about 5,000 students; this indicates a sufficiency so far as numbers are concerned.

It is evident that there will be a sharply declining demand for doctorates in the academic sector. Until now about 50% of new doctorates traditionally entered post-secondary academic employment; by 1980 there will be places for perhaps 20% of the new doctorates in that sector. It is also probable that the present shift in emphasis from pure to mission-oriented research will continue. Finally, it is likely that in a number of major fields there will be an excess of doctorate

supply over job demand, forcing doctorates into positions relatively unrelated to their advanced training or not requiring their specialized skills. Because New York, which accounts for about 10% of national doctorate production, has historically been a net supplier of doctorates to other states, and is a major employer of doctorates in all sectors, the State will be affected in a major way by problems of changing utilization.

The universities face a significant challenge to respond to these new kinds of demands. Innovation and flexibility will be required to modify appropriately programs and approaches to doctoral education firmly established by long tradition and practice. There appears to be little justification for establishing additional traditional programs or significantly enlarging capacity in most major fields. The emphasis definitely should be on increased flexibility and capacity for responsiveness to changing student and societal needs and demands. Concomitantly, there should be a general approach to consolidation and selective allocation of resources in doctoral education in support of programs of high quality and clear need within the context of the foregoing discussions.

II

REGENTS POLICIES

Major problems of doctoral education in New York State as pointed out by the Regents Commission on Doctoral Education are those of quality, costs and financing, allocation of resources, equality of student access, and, in certain areas, the need for new program directions. The Regents recognize the advantages of a richly diverse system of doctoral education expressed through the distinctiveness and integrity of individual institutions. They also recognize the advantages of coordination and cooperation among institutions to mutually enrich and strengthen their programs through the most effective use of all the State's resources. To ensure optimum combination of these two factors for the orderly and purposeful development of doctoral education in New York, the Regents endorse recommendations of their Commission on Doctoral Education and adopt the following policies:

(1) *All doctoral programs in the State, in both the public and private sectors, shall comprise an interrelated, statewide resource for doctoral education.*

This principle is fundamental to guide the future development of doctoral education in New York. It dispels the idea that every institution must aspire individually to offer a completely comprehensive set of doctoral programs, removing that spur to unnecessary and costly duplication and competition. The Regents are convinced that the coordination called for in offering doctoral programs will increase efficiency in the use of the State's resources, will raise the quality of programs, and will sharpen their focus and purpose.

(2) *All doctoral programs shall meet, or show clear potential for meeting, standards of high quality and demonstrated need.*

Doctoral education, the capstone of our educational system, can be justifiably sustained only if it meets high standards. The attributes of quality of a program are widely known and accepted. Among these are the level of faculty research and scholarship; the effectiveness of and attention to teaching and counseling by the faculty; the caliber of students; the caliber

of dissertations; the adequacy of laboratory, library, and other facilities; and presence of supporting and related programs. Need is broadly conceived and encompasses such aspects as the need to develop and disseminate knowledge, the needs of students and of institutions, and the needs of society for skilled manpower and for attention to its problems.

(3) *All qualified New York students shall have equal access to doctoral education at all institutions in the State.*

Economic and cultural factors should not bar realization of this policy. The Regents have already announced this need for equality of access to high quality educational opportunity. It is once again emphasized in conjunction with doctoral education. This is not only in recognition of the social justice it proclaims, but also in recognition of consequences of the first policy. If doctoral education is to be regarded as a statewide system, transcending the public-private divisions, then barriers to qualified students arising from higher attendance costs at any institution must be lowered. This will broaden the choice of doctoral programs for students with limited financial resources. There is also implied responsibility in both the public and private sectors for the education of all students who meet their admission standards.

III

REGENTS OBJECTIVES

(1) The coordination of planning of doctoral program offerings at all institutions, so as to avoid needless duplication, make the best use of available resources for meeting needs of programs, and maintain quality at high levels. Need is broadly conceived as already described.

(2) The concentration of programs, where appropriate, at a limited number of institutions to gain the advantage of mutually supporting, related programs, wherein physical and financial resources, and the interests, knowledge, and competencies of faculty and students are shared. Consideration should be given to exceptions related to regional needs or requirements for highly specialized programs.

(3) The periodic and systematic review and self-assessment by institutions of their doctoral programs.

(4) The review and evaluation of doctoral programs by the Commissioner of Education, in close consultation with eminent out-of-state consultants and also with the State's academic community, according to criteria specified by the Regents.[5] This will be done statewide on a subject-area by subject-area basis, following which the programs will be placed in one of three categories: (a) High quality and need — to be sustained, (b) intermediate quality and need — to be put on probation for 3 years and reviewed again, and (c) inadequate quality and need — to be phased out over an appropriate period of time.

(5) The concentration of available resources for doctoral education in selective support of those programs that meet standards of high quality and need. Institutions in both the public and private sectors should assure strong commitments to those programs they choose to offer. There is a shared responsibility of both State and Federal governments to contribute to such support.

(6) The provision of financial aid to students on the basis of need. Qualified students should be enabled to attend institutions in the

[5] See Appendix A for discussion of criteria.

State on an equitable basis regardless of differences in attendance costs. This objective involves a shared responsibility of the State with the Federal government.

(7) The elimination of barriers to equality of opportunity for doctoral studies for women and minority group members.

(8) A change of emphasis in doctoral programs, where called for, to take into account shifts in the kind of education and training appropriate for students' future careers and the changing needs of society that doctorates are expected to serve.

IV

REGENTS RECOMMENDATIONS FOR IMPLEMENTATION

Many of the Regents recommendations are already being implemented at a number of individual institutions. At the same time, some of these recommendations have interinstitutional dimensions that require regional or statewide coordination. The following recommendations are intended to implement the Regents policies and objectives for doctoral education in the State. It is urged that the Governor, Legislature, and individual institutions support them.

1. *Assessment of Doctoral Programs*

(a) Institutional Self-Assessment

That all doctorate-granting institutions include in their 1974 Progress Reports on the Statewide Plan their plans for periodic self-evaluation of their doctoral programs. These plans should provide for review of individual programs every 5 years, the use of external consultants appointed by others than those to be reviewed, the delineation of the criteria and procedures to be followed, and the schedule for their implementation.[6]

(b) Regents Statewide Assessment

That there be a systematic evaluation and rating by the Commissioner of Education of all doctoral programs in the State in each major subject area for the purpose of maintaining programs that meet standards of high quality and clear need,[7] and improving or phasing out those not meeting high standards. These reviews will employ the general criteria recommended by the Regents.[8]

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[6] In order to aid in providing reasonable commonality statewide, the Commissioner of Education will make available suggested guidelines. These guidelines will be developed in consultation with the Advisory Council on Graduate Education.

[7] Identified as major subject areas in New York's institutions are: history, chemistry, biology, physics, foreign languages, English, psychology, anthropology, sociology, economics, philosophy, political science, education, mathematics, engineering, business and management, and interdisciplinary and area studies. The other progams graduating smaller numbers of students are, of course, also subject to the general principles promulgated in this paper.

[8] See Appendix A.

The review should be initiated with two disciplines, one from the humanities or social sciences and the other from the natural sciences. The criteria and procedures thus developed will permit evaluation of the other programs in the State during the next 3 years.

(c) New Programs

That new doctoral programs be subjected to a similar stringent evaluation based on potential quality and need. The Commissioner of Education should encourage development of programs that may best deal with the changes in doctoral education that have taken and are taking place.

2. *Financial Support for Doctoral Programs*

(a) Private Institutions

The Regents endorse the recommendation made by their Commission on Doctoral Education that there be an increase of Bundy grants subsequent to the completion of the statewide evaluations, for each doctoral degree granted in programs that meet standards of high quality and need. It should be borne in mind that the present level of support, amounting on the average to about $500 annually, is less than 6% of $8,600, the estimated average annual cost (1972) per full-time equivalent doctoral student.

(b) Public Institutions

It is strongly urged that the subvention for doctoral education at the public institutions be increased to adequately contribute to the actual doctoral educational costs encountered. In addition, the Regents recommend that a new formula be devised for the total subvention based on a combination of enrollment and the number of doctorates granted. This would supplant the present formula which is based entirely on enrollment.

It is fully recognized that the appropriate offices of the government agencies and of the City and State Universities, working closely together, have the ultimate competence and responsibility to determine this formula and the precise amount of the required subvention increase.

(c) Shared State and Federal Responsibility for Doctoral Education

In view of the shared responsibility that states and the Federal government have for doctoral education, it is strongly urged that the Federal government complement the contribution of the State for adequate support of doctoral edution in New York.[9] This may be done through award of competitive research grants, fellowships, traineeships, and basic educational entitlement grants.

3. *Equality of Access to All Programs for Qualified Students*

That equality of access take into account barriers created by socioeconomic and cultural status. Minorities and women are the persons most affected.

(a) Access for Economically Deprived Students

That students in full-time attendance in doctoral programs in private institutions in New York State who are also State residents be provided grants-in-aid to offset the difference in cost of attendance between that in the public sector (City University of New York for New York City residents and State University of New York for others) and that at the private institutions. This grant should take into account the total financial needs and actual resources of the student. State grants-in-aid should be complemented by Federal basic educational entitlement grants consistent with the shared responsibility of the State and Federal governments for doctoral education.[10]

(b) Access for Minority Members

There is evidence that the low numbers of minority members in doctoral education is determined to a great extent by the remaining effects of the educational disadvantages they experienced in the schools. There is also evidence that recruitment of qualified minority members is not as effective as it should be.

In connection with the first point, the pool of minority group baccalaureate degree holders qualified for doctoral study is expected to be enlarged by implementation of the policies of Regents Position Paper No. 15, *Minority Access to and Participation in Post-Secondary Education*, and by encouragement of graduates of the various equal opportunity programs. Also, recruitment programs for well qualified

[9, 10] See discussion on p. 7.

minority members should be pursued more vigorously and effectively than they often are.

(c) Access for Women

In the case of women in doctoral studies, there still is strong evidence of discrimination in some fields. Here, too, the Regents have given their recommendations on this subject in Regents Position Paper No. 14, *Equal Opportunity for Women*. It is expected that forceful implementation of these recommendations to doctoral education will raise the number of women at that level of study.

4. *Response of Doctoral Education to Changing Conditions*

The Regents regard the following developments as significant changes to which the academic community must respond: (a) The promise of significantly decreased future employment opportunities in certain fields of doctoral study, most notably in the academic market; (b) the shift in the nature of the work activity required of doctorates for present and future employment. This shift is dictated by the increase in the proportion of prospective opportunities, both regionally and nationally, entailing mission-oriented or nonresearch activities; and (c) increasing calls and pressures to relate the education and training of students and the focus of research programs more directly both to developing methods for dealing with societal problems and to taking on specific problems.

It is emphasized that what is called for are shifts in the distribution of emphases in certain areas of doctoral education. It is not proposed that all the scholarly and pure research values of traditional doctoral education be discarded, but rather, that these values be supplemented by others.

All doctoral institutions shall include in their 1976 plans statements of their response to these 3 items and their plans for action in those areas where it is indicated.

5. *Coordination and Cooperation in Doctoral Education*

That coordination of planning for doctoral education be continued within the context of the Regents Statewide Plan. There should be presented in the 1976 plan a detailed outline for coordination, planning, and cooperation for doctoral education based upon the outcome of the program reviews and evaluations and taking into consideration the recommendations of the Advisory Council on Graduate Education.

APPENDIX A

Criteria for Evaluation of Doctoral Programs

The Regents concur in their Commission on Doctoral Education's statement of the general principles that must underlie the statewide evaluation of doctoral programs. Speaking of the evaluation, the Commission states:

"The evaluation committees should employ combinations of objective and judgmental criteria in making their evaluations. The criteria should reflect the joint requirements of high quality and need. Among the specific factors that must be considered are: quality of students, scholarly achievement of faculty, availability of laboratory and library facilities, success in graduating enrolled students, financial support, the supervision and guidance of students [caliber of dissertations], and the need for each program and its appropriateness for students' career aspirations.

"Within the context of this Report, "need for programs" has several connotations. It includes the need to sustain the expansion and transmission of knowledge in even the most esoteric fields; the need to produce skilled manpower for employment in industry, education, government, or other sectors; the need to develop understanding and methodologies that may be used to deal with societal problems; and the need for new forms and types of programs in doctoral education. The evaluative procedure should give weight to these several aspects of need according to the special character of each discipline. Assessments of need should be made on regional, statewide, and national bases, again according to the special character of each discipline.

"Consideration of the 'appropriateness of programs for students' career aspirations' has generally not been emphasized enough in the evaluation of doctoral programs. The practice in most fields has been primarily to prepare doctorates for research oriented careers in universities. The sharp contraction of the academic market and consequent greater likelihood of employment in other sectors and in new kinds of work activity necessitate much closer examination of the purposes and processes of doctoral education."

It is believed that the specific criteria for evaluation are best developed in conjunction with the pilot program of evaluation of two disci-

plines. This consideration, combined with the reminder of the Regents Commission on Doctoral Education that most disciplines have certain particular characteristics that should be considered individually, makes it appear best to provide here only general principles. For illustrative purposes, the criteria in evaluation guidelines developed by Princeton University is included with those expostulated by the Commission. These two sets of criteria are indeed similar in basic content both to each other and other sets of criteria under development.

Illustrative Guidelines for the Evaluation of Doctoral Programs

(Adapted from Princeton University Priorities Committee Guidelines for 1972)

1. The quality [and accessibility] of the faculty and of the program of graduate instruction in each program, as they can be inferred from the opinion of other scholars in the field, the views of faculty members in related disciplines at the institution, and any available evidence based on the opinions and experiences of graduate students.
2. The number and quality of students who have applied for graduate study, who have accepted admission, and who have completed the program.
3. The future of the whole field of study in terms of scientific and scholarly trends and in terms of national, state, and regional needs.
4. The national, statewide, and regional contribution of each doctoral program, viewed in the context of the number of other strong programs, whether or not they are operating below their desirable size and, in general, whether suspension of a program at the institution would have a seriously adverse effect on opportunities for graduate study in the nation, state, or region.
5. The comparative advantage of the institution in the field — that is, the ability of the institution to make a particular contribution to the field in question because of special factors such as a long tradition of good work in the subject, unusually strong library resources, and so on.
6. The interactions between graduate study in the field in question and graduate work and scholarship in other fields at the institution, and the likely effects of suspending work in the field on other programs and faculty members.
7. The interaction between graduate study in the field and the quality and variety of undergraduate offerings in the same field in the institution.
8. The costliness of work in the field, measured in terms of instructional costs, student support, library costs, space costs, and so on.

APPENDIX B

Recommendations of the Regents Commission on Doctoral Education*

1. The Regents should regard all the doctoral programs at both the public and private institutions, as constituting together an interrelated system for doctoral education.
2. The Regents should have a general policy of concentrating programs at a relatively limited number of institutions in the interest of both highest quality and the most efficient and economical use of limited resources.
3. The Regents should establish special committees to review the quality of and need for doctoral programs in selected disciplinary areas. Only programs meeting standards of present or potential high quality, and need should be offered.
4. New York State should lend its financial support in both the public and private sectors only to programs meeting the standards of existing or potential high quality, and need. Programs without these qualifications should not be supported.
5. New York State should strengthen its support of all programs that meet the standards of high quality and need.
6. The Regents should sponsor increased cooperation and coordination in doctoral education by the institutions within the State.
7. The Regents should ensure that doctoral education at all institutions within the State be accessible to all qualified New York students. Economic and cultural barriers to the realization of this goal should be eliminated.
8. The Regents should require that, as part of the 1974 Statewide Master Plan Progress Report, all the doctoral granting institutions be required to review their doctoral programs from the point of view of determining anew their purposes, place, and need in overall institutional plans.
9. The Commissioner of Education should end the moratorium on new doctoral programs when ready to implement criteria and procedures that will ensure that any new programs fully meet rigorous standards of potential quality, and need.

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* From their report, *Meeting the Needs of Doctoral Education in New York*. The Commission members were: Robben W. Fleming (Chairman), University of Michigan; Robert A. Alberty, Massachusetts Institute of Technology; Germain Bree, University of Wisconsin; Thomas F. Jones, Jr., University of South Carolina; Edward M. Kresky, Wertheim and Company; John P. Miller, Yale University, and Frederick P. Thieme, University of Colorado. T. Edward Hollander, NYS Education Department, served as Executive Secretary and Vernon Ozarow, NYS Education Department, served as Staff Director for the Commission.